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[redacted] FLIGHT PATH

During the Winter season and early Spring, the atmosphere at 80-110,000 feet is dominated by 1 to 3 intense low cells which surround the North Pole. At least one of these cells is usually located over the northern portion of the USSR. The resultant flow, which exists about 95% of the time is from northwest Europe or the Mediterranean Sea area, over the site of interest, thence to Mongolia. About 90% of the time the winds flow from the west over the eastern USSR to the Arctic Ocean and Alaska. About 10% of the time the wind flow from Mongolia may be from the west, over Sakhalin to the Sea of Skhotsh.

If the balloon is capable of descent to 50,000 feet over Mongolia/North China, the probability of a trajectory to the east, toward Hokkaido, rather than northeast would increase to approximately 80%. The 10% to 80% change in probability is not a linear change with altitude. The 10% probability remains constant from 100,000 feet to 65,000 feet followed by a rapid increase to near 80% at 50,000 feet.

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[redacted] ALTITUDE PROFILE

In balloon flight profiles using a Super Pressure Vehicle with adequate balance between payload and lift capability, the altitude fluctuation is dependent mainly on pressure layers and diurnal super heating effects. A maximum altitude variation of 5K ft. has been estimated throughout a 6-day period after launch based on permeability data and field tests performed with balloons.

Experience is limited on long, high altitude balloon flights because prior programs were directed toward systems that could be recovered after a short flight to altitude.

The attached chart is the predicted altitude profile that can be achievable with the present materials and state of the art.

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[redacted] DESTRUCT MECHANISM

Destruct system considerations:

Several methods to destruct the balloon-borne system have been considered for the main purpose of preventing the real mission of the unit from being divulged. The primary requirements for a destruct system are:

1. The destruct function should not be accompanied by open flames, blast, noise scattering of parts, corrosive liquids, or any other mechanism which might be hazardous to personnel, create fires, or initiate rumors that chemical or pyro warfare was being employed.

2. Destruction would be only limited to the electronic circuits to prevent disclosure of its capability or application.

3. The system should not create a hazard when handled during system processing and deployment.

The mechanism and philosophy proposed for development of the destruct system include:

1. The electronic circuits will be etched on a pyro-insulation board which can be "fired" electrically. This will cause the circuits to melt and displacement of the components which are not melted. This will make analysis of the circuits and deduction of their functions difficult.

2. The "burning" will be continued within the electronic housing which contains oxygen bearing chemicals to support high level combustion.

Destruction may occur under the following conditions:

1. Loss of altitude sensed at the deployment phase, using an ascent rate sensor, and at descent from operational altitude.

2. A reduction in battery voltage.

3. On command through a radio link using a coded signal.

4. A timer may be used to limit the maximum mission time if desired.